

Interactive comment on “An active power control approach for wake-induced load alleviation in a fully developed wind farm boundary layer” by Mehdi Vali et al.

Anonymous Referee #1

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The paper proposes a new method for providing AGC from a wind farm while accounting for wake interactions that increases the objectives of the wind farm from power tracking to include minimization of structural loads. Structural loading is limited to be only tower fore-aft, but this is a reasonable decision for this stage of research.

Overall the paper quality is very high, the text is easy to follow and explanations are thorough. The figures are clear, and the captions provide good detail. Tables and formulas make clear the methods and parameters. Abstract and introduction flow well. Finally, the reference to, and continuous interaction with the existing literature is truly excellent, and the paper very clearly indicates the state of the literature, and what

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contributions it is making.

I therefore find the paper close to ready as is. One thought I had reading the paper is that perhaps the problem's complexity will grow in a new dimension as additional loads are added, as it is possible that control decisions which help one load, hurt another, and therefore the relative importance weighting between loads will add some complexity (perhaps a necessary arbitrary selection will need to be made, or perhaps some sort of pareto analysis could stand in). Still, this is clearly and properly identified as future work, and so I only comment on it here in case the author's have already thought about this.

Minor comments:

- 1) The paper is somewhat long, if it is possible to find opportunities to trim which don't detract too severely from the overall quality, it could be worthwhile
- 2) The line on page 10 "The wake interactions among the wind turbines play a key role in the stability of the power grid" struck me while reading it as perhaps over-stating things.

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